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RAW SEQUENCE LISTING

DATE: 05/07/2002

PATENT APPLICATION: US/10/086,208

TIME: 11:26:07

Input Set : N:\Crf3\RULE60\10086208.raw

Output Set: N:\CRF3\05072002\J086208.raw

SEQUENCE LISTING

3 (1) GENERAL INFORMATION:

5 (i) APPLICANT: Goldstein, Gideon

7 (ii) TITLE OF INVENTION: Methods and Compositions for Impairing

8 Multiplication of HIV-1

10 (iii) NUMBER OF SEQUENCES: 124

12 (iv) CORRESPONDENCE ADDRESS:

13 (A) ADDRESSEE: Howson and Howson

14 (B) STREET: Spring House Corporate Cntr., P.O. Box 457

15 (C) CITY: Spring House

16 (D) STATE: PA

17 (E) COUNTRY: USA

18 (F) ZIP: 19477

ENTERED

20 (v) COMPUTER READABLE FORM:

21 (A) MEDIUM TYPE: Floppy disk

22 (B) COMPUTER: IBM PC compatible

23 (C) OPERATING SYSTEM: PC-DOS/MS-DOS

24 (D) SOFTWARE: PatentIn Release #1.0, Version #1.30

26 (vi) CURRENT APPLICATION DATA:

C--> 27 (A) APPLICATION NUMBER: US/10/086,208

C--> 28 (B) FILING DATE: 28-Feb-2002

29 (C) CLASSIFICATION:

31 (vii) PRIOR APPLICATION DATA:

33 (A) APPLICATION NUMBER: US/09/451,067

34 (B) FILING DATE:

35 (A) APPLICATION NUMBER: 09/113,921

36 (B) FILING DATE:

38 (viii) ATTORNEY/AGENT INFORMATION:

39 (A) NAME: Bak, Mary E.

40 (B) REGISTRATION NUMBER: 31,215

41 (C) REFERENCE/DOCKET NUMBER: GGP2AUSA

43 (ix) TELECOMMUNICATION INFORMATION:

44 (A) TELEPHONE: 215-540-9200

45 (B) TELEFAX: 215-540-5818

48 (2) INFORMATION FOR SEQ ID NO: 1:

50 (i) SEQUENCE CHARACTERISTICS:

51 (A) LENGTH: 72 amino acids

52 (B) TYPE: amino acid

53 (C) STRANDEDNESS:

54 (D) TOPOLOGY: linear

56 (ii) MOLECULE TYPE: protein

61 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

63 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser

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```

64      1          5          10          15
66      Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
67              20          25          30
69      His Cys Gln Val Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly
70              35          40          45
72      Arg Lys Lys Arg Arg Gln Arg Arg Arg Ala Pro Gln Asp Ser Gln Thr
73              50          55          60
75      His Gln Val Ser Leu Ser Lys Gln
76      65          70
78 (2) INFORMATION FOR SEQ ID NO: 2:
80      (i) SEQUENCE CHARACTERISTICS:
81          (A) LENGTH: 912 base pairs
82          (B) TYPE: nucleic acid
83          (C) STRANDEDNESS: double
84          (D) TOPOLOGY: linear
86      (ii) MOLECULE TYPE: cDNA
89      (ix) FEATURE:
90          (A) NAME/KEY: CDS
91          (B) LOCATION: join(1..876, 883..912)
94      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
96 GAG CTC TAC AAA TCC GGG GAT CCG GGT GAA GAT CCG CGT TTA GAG CCG      48
97 Glu Leu Tyr Lys Ser Gly Asp Pro Gly Glu Asp Pro Arg Leu Glu Pro
98 1          5          10          15
100 TGG AAA CAC CCG GGT TCT GGT TCT GTT GAC CCT AAC CTT GAA CCT TGG      96
101 Trp Lys His Pro Gly Ser Gly Ser Val Asp Pro Asn Leu Glu Pro Trp
102              20          25          30
104 AAG CAT CCT GGC AGC TCC GGA GTC GAT CCC AAA CTC GAG CCC TGG AAA      144
105 Lys His Pro Gly Ser Ser Gly Val Asp Pro Lys Leu Glu Pro Trp Lys
106              35          40          45
108 CAC CCC GGA AGT TCG GGG GTA GAC CCA TCT CTG GAA CCA TGG AAG CAT      192
109 His Pro Gly Ser Ser Gly Val Asp Pro Ser Leu Glu Pro Trp Lys His
110              50          55          60
112 CCA GGG AGT GGT AGC GTG AAT CCG TCA TTA GAG CCG TGG AAA CAC CCG      240
113 Pro Gly Ser Gly Ser Val Asn Pro Ser Leu Glu Pro Trp Lys His Pro
114 65          70          75          80
116 GGT TCA TCT GGA GTT GAT CCT CGC TTG GAA CCT TGG GAG CAT CCT GGT      288
117 Gly Ser Ser Gly Val Asp Pro Arg Leu Glu Pro Trp Glu His Pro Gly
118              85          90          95
120 TCG TCC GGT GTA GAC CCC CGA CTT GAG CCC TGG AAT CAC CTC GGG AGT      336
121 Ser Ser Gly Val Asp Pro Arg Leu Glu Pro Trp Asn His Leu Gly Ser
122              100          105          110
124 TCA GGC GTA GAT CAT CGG CTC GAA CCA TGG AAA CAT CCA GGT TCT GGA      384
125 Ser Gly Val Asp His Arg Leu Glu Pro Trp Lys His Pro Gly Ser Gly
126              115          120          125
128 GAT CTG CGC CAG CGG CGA CGT ACT CCT CAG GAT TCT GGA TCT CGA CAA      432
129 Asp Leu Arg Gln Arg Arg Arg Thr Pro Gln Asp Ser Gly Ser Arg Gln
130              130          135          140
132 CGT CGG CGC CCT CCC CAA GAC TCC TCA GGA CGG CAG CGC CGA CGA CCC      480
133 Arg Arg Arg Pro Pro Gln Asp Ser Ser Gly Arg Gln Arg Arg Arg Pro

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Input Set : N:\Crif3\RULE60\10086208.raw

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```

134 145          150          155          160
136 CCA CAG GGT TCA GGT TCA CGT CAA CGA CGC GGT CCA CCC CAA GGC TCG      528
137 Pro Gln Gly Ser Gly Ser Arg Gln Arg Arg Gly Pro Pro Gln Gly Ser
138          165          170          175
140 GGT TCG CGC CAG CGG CGA CGT CCG CCT CAG AAC TCT AGT GGA CGA CAA      576
141 Gly Ser Arg Gln Arg Arg Arg Pro Pro Gln Asn Ser Ser Gly Arg Gln
142          180          185          190
144 CGT CGG CGC TCT CCC CAA GAT TCC GGC GGG CGG CAG CGC CGT CGA TCA      624
145 Arg Arg Arg Ser Pro Gln Asp Ser Gly Gly Arg Gln Arg Arg Arg Ser
146          195          200          205
148 CCA CAG AAC TCA GGT GGG CGT CAA CGA CGC CGG ACT CCG CAA TCT TCA      672
149 Pro Gln Asn Ser Gly Gly Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser
150          210          215          220
152 TCC GGC CGC CAG CGG CGA CGT GCC CAT CAG AAT AGC GGC AGC CGA CAA      720
153 Ser Gly Arg Gln Arg Arg Ala His Gln Asn Ser Gly Ser Arg Gln
154 225          230          235          240
156 CGT CGG CGC GCA CAC CAA GAC AGC AGT GGG CGG CAG CGC CGT CGA GCG      768
157 Arg Arg Arg Ala His Gln Asp Ser Ser Gly Arg Gln Arg Arg Arg Ala
158          245          250          255
160 CCT GAA GAT AGT GGT TCT CGT CAA CGA CGC CGG GCT CCC CCT GAC AGC      816
161 Pro Glu Asp Ser Gly Ser Arg Gln Arg Arg Arg Ala Pro Pro Asp Ser
162          260          265          270
164 TCC GGA CGC CAG CGG CAA CGT GCA CCA GAT AGT TCC TCA GGT CAT CAC      864
165 Ser Gly Arg Gln Arg Gln Arg Ala Pro Asp Ser Ser Ser Gly His His
166          275          280          285
168 CAC CAT CAT CAC TAATAA GAA TTC GGA TCC TCT AGA GTC GAC AAG CTT      912
169 His His His His          Glu Phe Gly Ser Ser Arg Val Asp Lys Leu
170          290          295          300
173 (2) INFORMATION FOR SEQ ID NO: 3:
175     (i) SEQUENCE CHARACTERISTICS:
176         (A) LENGTH: 302 amino acids
177         (B) TYPE: amino acid
178         (D) TOPOLOGY: linear
180     (ii) MOLECULE TYPE: protein
182     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
184 Glu Leu Tyr Lys Ser Gly Asp Pro Gly Glu Asp Pro Arg Leu Glu Pro
185 1          5          10          15
187 Trp Lys His Pro Gly Ser Gly Ser Val Asp Pro Asn Leu Glu Pro Trp
188          20          25          30
190 Lys His Pro Gly Ser Ser Gly Val Asp Pro Lys Leu Glu Pro Trp Lys
191          35          40          45
193 His Pro Gly Ser Ser Gly Val Asp Pro Ser Leu Glu Pro Trp Lys His
194          50          55          60
196 Pro Gly Ser Gly Ser Val Asn Pro Ser Leu Glu Pro Trp Lys His Pro
197 65          70          75          80
199 Gly Ser Ser Gly Val Asp Pro Arg Leu Glu Pro Trp Glu His Pro Gly
200          85          90          95
202 Ser Ser Gly Val Asp Pro Arg Leu Glu Pro Trp Asn His Leu Gly Ser
203          100          105          110

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```

205 Ser Gly Val Asp His Arg Leu Glu Pro Trp Lys His Pro Gly Ser Gly
206      115      120      125
208 Asp Leu Arg Gln Arg Arg Arg Thr Pro Gln Asp Ser Gly Ser Arg Gln
209      130      135      140
211 Arg Arg Arg Pro Pro Gln Asp Ser Ser Gly Arg Gln Arg Arg Arg Pro
212 145      150      155      160
214 Pro Gln Gly Ser Gly Ser Arg Gln Arg Arg Gly Pro Pro Gln Gly Ser
215      165      170      175
217 Gly Ser Arg Gln Arg Arg Arg Pro Pro Gln Asn Ser Ser Gly Arg Gln
218      180      185      190
220 Arg Arg Arg Ser Pro Gln Asp Ser Gly Gly Arg Gln Arg Arg Arg Ser
221      195      200      205
223 Pro Gln Asn Ser Gly Gly Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser
224      210      215      220
226 Ser Gly Arg Gln Arg Arg Arg Ala His Gln Asn Ser Gly Ser Arg Gln
227 225      230      235      240
229 Arg Arg Arg Ala His Gln Asp Ser Ser Gly Arg Gln Arg Arg Arg Ala
230      245      250      255
232 Pro Glu Asp Ser Gly Ser Arg Gln Arg Arg Arg Ala Pro Pro Asp Ser
233      260      265      270
235 Ser Gly Arg Gln Arg Gln Arg Ala Pro Asp Ser Ser Ser Gly His His
236      275      280      285
238 His His His His Glu Phe Gly Ser Ser Arg Val Asp Lys Leu
239      290      295      300

```

241 (2) INFORMATION FOR SEQ ID NO: 4:

243 (i) SEQUENCE CHARACTERISTICS:

244 (A) LENGTH: 9 amino acids

245 (B) TYPE: amino acid

246 (C) STRANDEDNESS:

247 (D) TOPOLOGY: linear

249 (ii) MOLECULE TYPE: peptide

254 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

256 Arg Lys Lys Arg Arg Gln Arg Arg Arg

257 1 5

259 (2) INFORMATION FOR SEQ ID NO: 5:

261 (i) SEQUENCE CHARACTERISTICS:

262 (A) LENGTH: 6 amino acids

263 (B) TYPE: amino acid

264 (C) STRANDEDNESS:

265 (D) TOPOLOGY: linear

267 (ii) MOLECULE TYPE: peptide

272 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

274 Gly Arg Gly Asp Ser Pro

275 1 5

277 (2) INFORMATION FOR SEQ ID NO: 6:

279 (i) SEQUENCE CHARACTERISTICS:

280 (A) LENGTH: 7 amino acids

281 (B) TYPE: amino acid

282 (C) STRANDEDNESS:

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/086,208

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Input Set : N:\Crif3\RULE60\10086208.raw

Output Set: N:\CRF3\05072002\J086208.raw

```

283         (D) TOPOLOGY: linear
285     (ii) MOLECULE TYPE: peptide
290     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
292     Val Asp Pro Arg Leu Glu Pro
293     1             5
295 (2) INFORMATION FOR SEQ ID NO: 7:
297     (i) SEQUENCE CHARACTERISTICS:
298         (A) LENGTH: 7 amino acids
299         (B) TYPE: amino acid
300         (C) STRANDEDNESS:
301         (D) TOPOLOGY: linear
303     (ii) MOLECULE TYPE: peptide
308     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
310     Val Asp Pro Lys Leu Glu Pro
311     1             5
313 (2) INFORMATION FOR SEQ ID NO: 8:
315     (i) SEQUENCE CHARACTERISTICS:
316         (A) LENGTH: 7 amino acids
317         (B) TYPE: amino acid
318         (C) STRANDEDNESS:
319         (D) TOPOLOGY: linear
321     (ii) MOLECULE TYPE: peptide
326     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
328     Val Asp Pro Ser Leu Glu Pro
329     1             5
331 (2) INFORMATION FOR SEQ ID NO: 9:
333     (i) SEQUENCE CHARACTERISTICS:
334         (A) LENGTH: 7 amino acids
335         (B) TYPE: amino acid
336         (C) STRANDEDNESS:
337         (D) TOPOLOGY: linear
339     (ii) MOLECULE TYPE: peptide
344     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
346     Val Asp Pro Asn Leu Glu Pro
347     1             5
349 (2) INFORMATION FOR SEQ ID NO: 10:
351     (i) SEQUENCE CHARACTERISTICS:
352         (A) LENGTH: 6 amino acids
353         (B) TYPE: amino acid
354         (C) STRANDEDNESS:
355         (D) TOPOLOGY: linear
357     (ii) MOLECULE TYPE: peptide
360     (ix) FEATURE:
361         (A) NAME/KEY: Binding-site
362         (B) LOCATION: 6
363         (D) OTHER INFORMATION: /note= "an amide is attached to the
364 Ser in position 6"
367     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
369     Trp Lys His Pro Gly Ser

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/086,208

DATE: 05/07/2002
TIME: 11:26:08

Input Set : N:\Crf3\RULE60\10086208.raw
Output Set: N:\CRF3\05072002\J086208.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:36; Xaa Pos.1,5,9
Seq#:37; Xaa Pos.1,3,13
Seq#:38; Xaa Pos.1,4,5,6,7
Seq#:39; Xaa Pos.1,4,7,14
Seq#:58; Xaa Pos.4
Seq#:86; Xaa Pos.4
Seq#:87; Xaa Pos.2
Seq#:88; Xaa Pos.3,4,5,6
Seq#:89; Xaa Pos.3,6
Seq#:110; Xaa Pos.3,6
Seq#:124; Xaa Pos.6

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/086,208

DATE: 05/07/2002

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Input Set : N:\Crif3\RULE60\10086208.raw

Output Set: N:\CRF3\05072002\J086208.raw

L:27 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:28 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:875 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0
L:926 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:988 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
L:1044 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0
L:1400 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:0
L:1928 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:86 after pos.:0
L:1951 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87 after pos.:0
L:1992 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:88 after pos.:0
L:2021 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:89 after pos.:0
L:2453 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:110 after pos.:0
L:2720 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:0